



The effectiveness of the "Unplugged" program in Nigeria: study design and results

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Response to Drugs and Related Organized Crime in Nigeria

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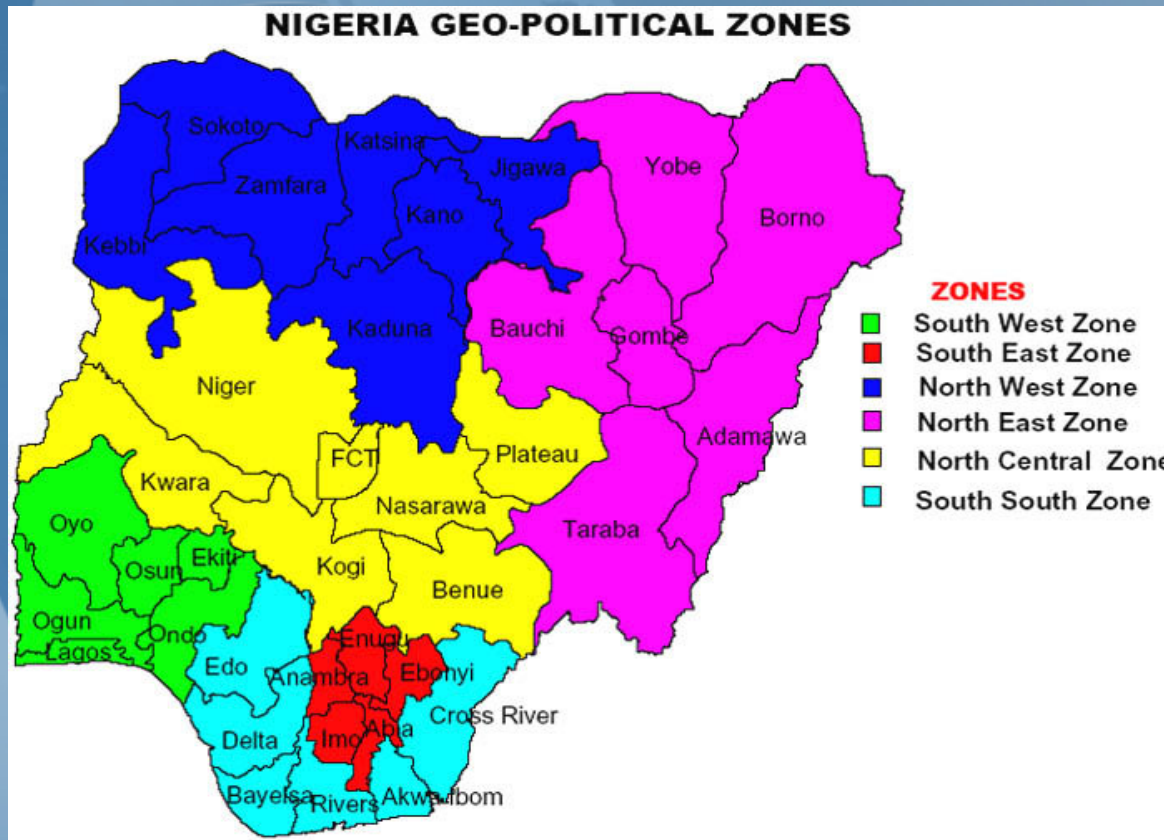


- In 2015, the European Union funded a large scale project (project FED/2012/306-744) to promote **healthy lifestyles in schools, families and communities** in **Nigeria**.
- **Unplugged** was chosen as prevention intervention for the school setting.
- Involved institutions:
 - **Nigeria Office of UNODC**
 - **Federal Ministry of Education**
 - **National Drug Law Enforcement Agency**
 - **National Agency for Food and Drug Administration**

Evaluation of effectiveness

- To evaluate the effectiveness of Unplugged in reducing use of substances and improving risk perceptions and skills, a **Randomized Controlled Trial** was organized
- Assuming alpha 0.05 (two-sided), power 0.80, prevalence of alcohol use in the control arm 14.6% and in the intervention arm 10.2%, 45 pupils per class, ICC 0.025, the estimated sample size needed was 1943 pupils per group. Setting as 3 the classes to be invited in each school, this corresponded to 14 schools in the intervention and 14 schools in the control arm. To overcome possible drop-outs, the number of schools was enlarged to 16 in the intervention and 16 in the control arm.
 - Intervention: **Unplugged** (16 schools)
 - Control: **usual school curriculum = no intervention** (16 schools)

The Federal Ministry of Education provided a **list of 65 federal schools** based in the 7 Zones of the country, available to participate in the study. The evaluation involved the entire territory of Nigeria



32 schools were randomized to intervention or control group:

- 4 in North Central
- 2 in Abuja Federal Territory
- 4 in North East
- 6 in North West
- 4 in South East
- 4 in South South
- 8 in South West

The randomization occurred within each zone.



BASELINE (PRE-TEST SURVEY)

- November/December 2015
 - 32 schools, 96 classes participated
 - 4078 baseline questionnaires were collected:
 - In the control arm: 2288 out of 2160 expected (106%)
 - In the intervention arm: 1790 out of 2160 expected (83%)
(17% drop-out in the intervention arm)
- *expected sample according to rough calculations based on 45 pupils/class

FOLLOW-UP (POST-TEST SURVEY)

- May/June 2016
- 32 schools, 96 classes participated
- 4053 follow-up questionnaires were collected:
 - In the control arm: 2414 (out of 2288 collected at baseline)
 - In the intervention arm: 1639 (out of 1790 collected at baseline)



Analysis of the program effects

Baseline and follow-up questionnaires were matched through the anonymous code.

the matched sample included 3342 pupils

(679 follow-up questionnaires not matching with baseline)

The effect of the program was studied on the:

- **4053 follow-up pupils (intervention vs control)**
- **3342 matched pupils (taking into account baseline use)**

The results on the effect were quite similar for both study samples.

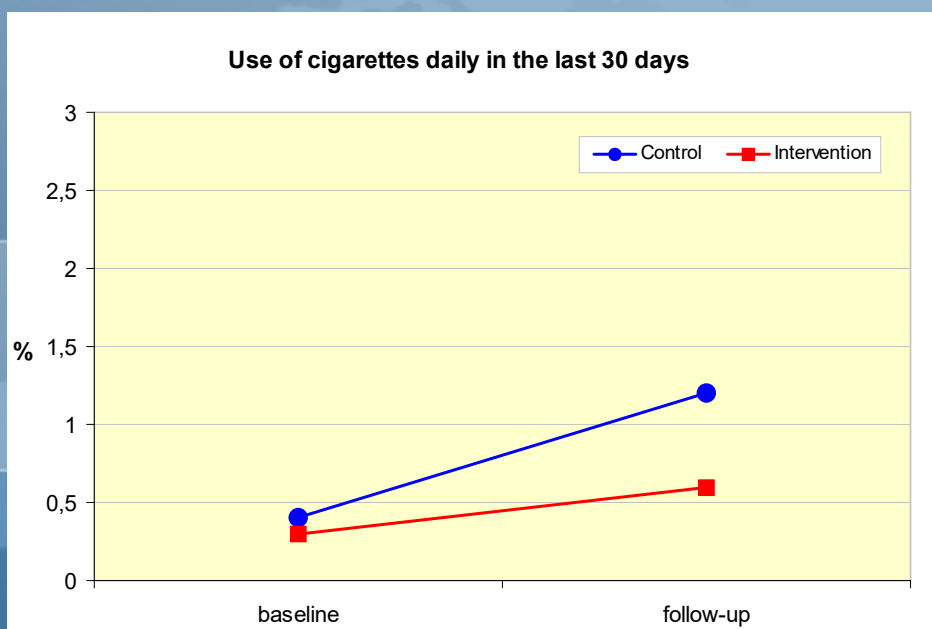
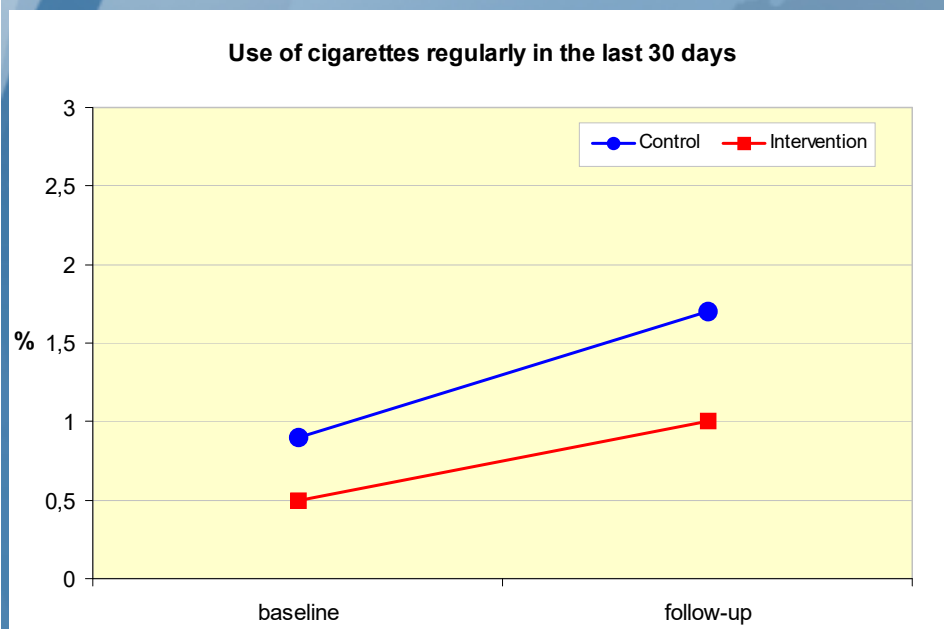
The analysis of the matched sample is more reliable and rigorous, and thus shown in the next slides.



Prevalence of substance use at baseline

	Intervention (n=1384)	Control (n=1958)	Total (n=3342)
Cigarette smoking			
Lifetime	3.9%	4.5%	4.3%
Last 30 days	1.3%	2.0%	1.7%
>6 times (regular)	0.5%	0.9%	0.7%
>20 times (daily)	0.3%	0.4%	0.4%
Alcohol drinking			
Lifetime	34.4%	32.1%	33.1%
Last 30 days	14.4%	10.1%	11.9%
>6 times (regular)	5.9%	4.8%	5.3%
>20 times (daily)	2.0%	1.6%	1.8%
Cannabis use			
Lifetime	5.5%	5.6%	5.5%
Last 30 days	1.8%	1.6%	1.7%
>6 times (regular)	0.9%	1.1%	1.0%

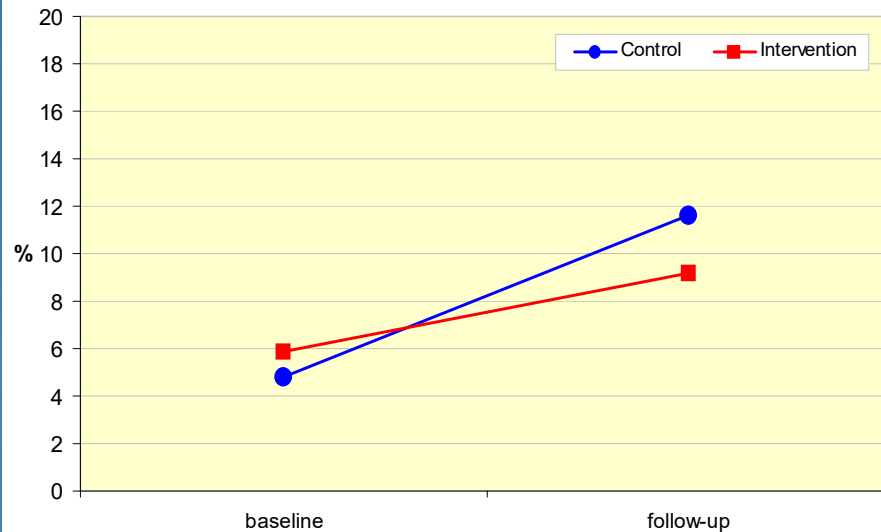
Cigarettes smoking (to be noted the very low prevalence)



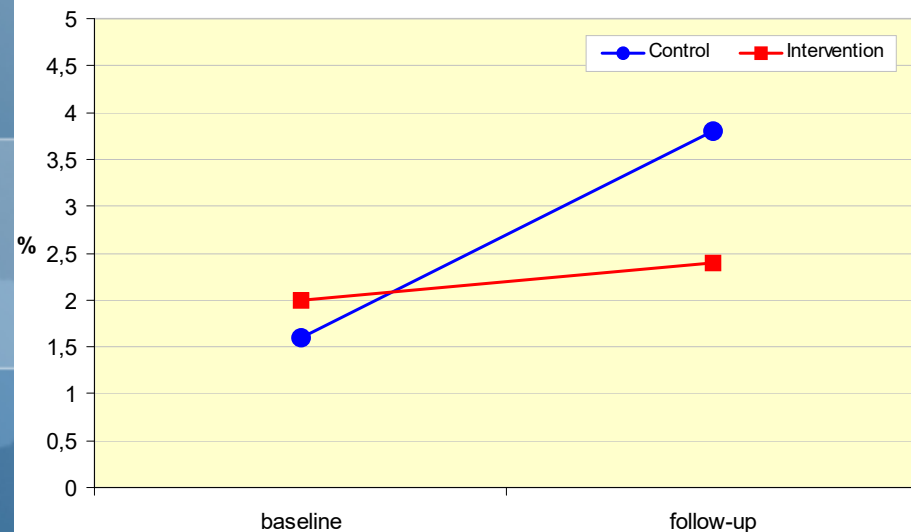
The proportion of pupils declaring to have smoked cigarettes regularly and daily in the last 30 days **increased LESS** in intervention vs control pupils from baseline to follow-up

Alcohol drinking

Use of alcohol regularly in the last 30 days



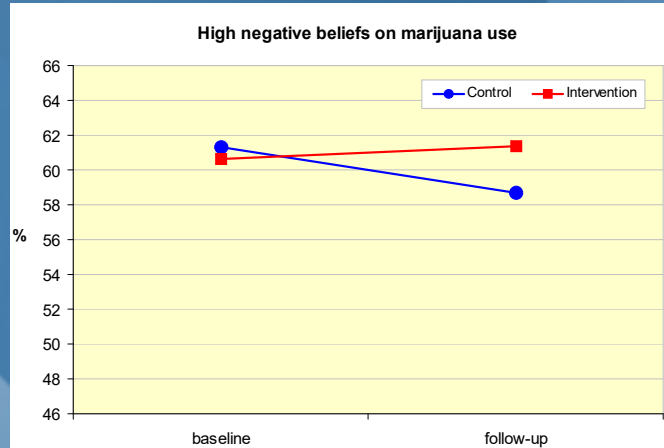
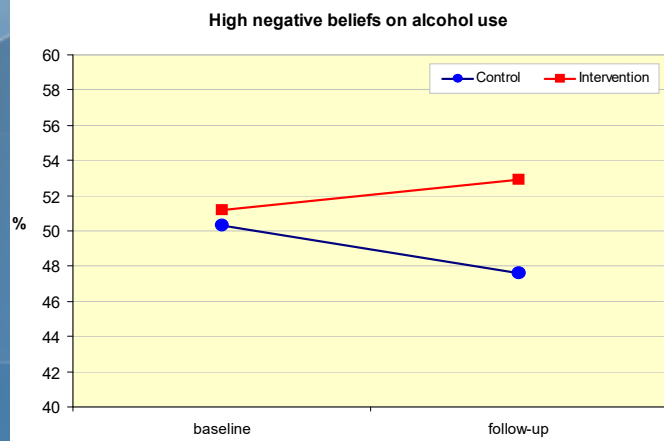
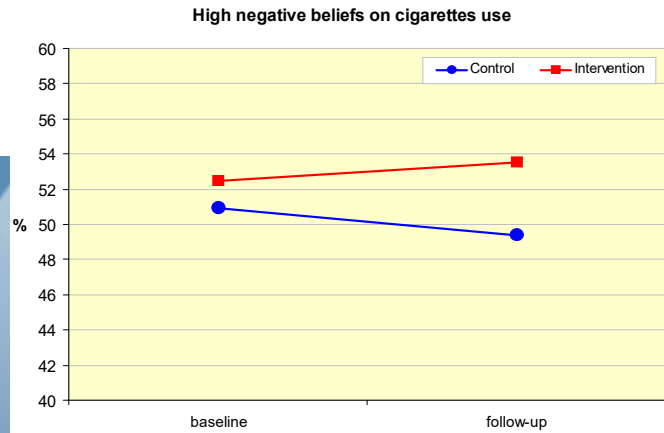
Use of alcohol daily in the last 30 days



The proportion of pupils declaring to have drunk alcohol regularly and daily in the last 30 days **increased LESS** in intervention vs control pupils from baseline to follow-up

Negative beliefs

At follow-up versus baseline, negative beliefs about tobacco, alcohol and marijuana increased among intervention and reduced among control students



Crude versus adjusted effect

- The effect of the program as shown graphically in the previous figures is however not completely reliable
- It is needed indeed to adjust for
 - Cluster effect (similarity of pupils within the zones, schools and classes)
 - Different prevalence of use by zone
 - Confounding factors:
- With this aim, multilevel adjusted models were run, fitting geo-political zone as I level, and adding baseline level of the outcome, age, and the zone's baseline prevalence of tobacco, alcohol or marijuana specific for the outcome as potential confounders.

Adjusted effect of Unplugged on substance use

Behaviours in the last 30 days	Overall sample		10-14 years old	
	Odds Ratios (95% CI)	Risk reduction	Odds Ratios (95% CI)	Risk reduction
Cigarette use				
At least once	0.84 (0.56-1.27)	-16%	0.61 (0.21-1.73)	-39%
>6 times (regular)	0.54 (0.28-1.06)	-46%		
>20 times (daily)	0.45 (0.20-1.09)	-55%		
Alcohol drinking				
At least once	0.82 (0.69-0.98)	-18%	0.71 (0.53-0.94)	-29%
>6 times (regular)	0.74 (0.58-0.94)	-26%	0.58 (0.38-0.86)	-42%
>20 times (daily)	0.61 (0.40-0.95)	-39%	0.83 (0.38-1.82)	-17%
Cannabis use				
At least once	0.81 (0.51-1.29)	-19%	0.17 (0.03-0.86)	-83%
>6 times (regular)	0.82 (0.46-1.45)	-18%		

The program is effective in reducing the proportion of alcohol and cannabis users at follow-up:

- with a stronger effect on alcohol among 10-14 years old pupils
- and an effect on cannabis only among 10-14 years old pupils

Adjusted effect of Unplugged on possible mediators

	Overall sample		10-14 years old	
	Odds Ratios (95% CI)	Improvement	Odds Ratios (95% CI)	Improvement
Negative beliefs				
on cigarettes	1.17 (1.00-1.38)	+17%	1.13 (0.89-1.43)	+13%
on alcohol	1.25 (1.07-1.46)	+25%	1.25 (0.99-1.59)	+25%
on marijuana or other drugs	1.15 (0.97-1.35)	+15%	1.06 (0.82-1.36)	+6%
Good class climate	1.35 (1.13-1.63)	+35%	1.49 (1.14-1.96)	+49%
Low peer's prevalence				
smoke cigarettes	1.39 (1.19-1.62)	+39%	1.59 (1.25-2.02)	+59%
drink alcohol	1.34 (1.15-1.56)	+34%	1.43 (1.14-1.80)	+43%
get drunk	1.29 (1.11-1.51)	+29%	1.35 (1.07-1.70)	+35%
marijuana or other drug use	1.19 (1.03-1.39)	+19%	1.19 (0.95-1.50)	+19%

The program increased negative beliefs on cigarettes and alcohol, reduced the perception of peer's use, and improved class climate.

(to be studied as mediators of the program effect)



Conclusions

From these results, we can conclude that **Unplugged reached in Nigeria good results in preventing alcohol and cannabis use, increasing negative beliefs, improving class climate, and correcting normative beliefs.** Therefore, the implementation of Unplugged at a larger scale in the country can be supported, with the attention of focusing on **younger adolescents.**